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ABSTRACT

This paper is one of a series presenting data from the Texas Teacher Effectiveness Project, a two-year observational study of second- and third-grade teachers who were consistent in producing student learning gains. The study was designed to identify relationships between teacher characteristics and student learning. Variables that were differentially related to learning gains by low versus high socioeconomic status (SES) students included patience and encouragement, demandingness and criticism, firmness of classroom control, indirectness, peer tutoring, homework, "with-it-ness," phonics emphasis in reading, use of teacher-made materials, and individualization, among others. Patterns of teacher behavior on these variables, which were associated with maximum learning in each SES group, are discussed. (Author/MJB)

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Teacher Behaviors Related to Learning
by Low vs. High Socio-economic Status
Early Elementary Students¹

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The present paper was one of four presented at a "related papers" session at the 1975 annual meeting of the American Educational Research Association, entitled "Teacher Behavior and Student Outcomes: Texas Teacher Effectiveness Study."

Papers in the session included:

1. "Teacher Behaviors Related to Learning by Low vs. High Socio-economic Status Early Elementary Students," by Jere E. Brophy.
2. "Relationship of Teacher Praise and Criticism to Student Outcomes," by Carolyn M. Evertson.
3. "Teacher Feedback to Children's Answers: Process-Product Relationships," by Linda L. Mahaffey, Jere E. Brophy, and Carolyn M. Evertson.
4. "Error Rates and Question Difficulty Related to Elementary Children's Learning," by W. John Crawford, Carol E. King, Jere E. Brophy, and Carolyn M. Evertson.

Teacher Behaviors Related to Learning by Low vs. High

Socioeconomic Status Early Elementary Students

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This paper describes SES differences in correlates of learning gains.

Data are from the Texas Teacher Effectiveness Study, a two-year, replicated study of presage and process correlates of learning gains by second and third grades. Variables which were differentially related to learning gains by low versus high SES students included patience and encouragement, demandingness and criticism, firmness of classroom control, indirectness, peer tutoring, homework, "withitness," phonics emphasis in reading, use of teacher-made materials, and individualization, among others. Patterns of teacher behavior on these variables which are associated with maximal learning in each SES group will be discussed.

This paper and those to follow all present data from the Texas Teacher Effectiveness Project, a two-year observational study of second and third grade teachers designed to identify relationships between teacher characteristics and student learning. The present paper will deal with some of the relationships which were found to relate in a positive direction to learning among high SES students and in a negative direction to learning among low SES students, or vice versa. Before getting to these data, however, I will first briefly describe the study as a whole for those of you who are unfamiliar with it.

The study was a two-year, replicated naturalistic observation study involving collection of classroom process data through both high and low inference instruments and presage data through questionnaires and interviews. The teacher effectiveness criteria were residual student gain scores on three language arts and two mathematics subtests of the Metropolitan Achievement Test Battery. The teachers included in this sample had been teaching at either second or third grade, respectively, for a minimum of four years when the study began, and they were among the most consistent teachers in producing student learning gains across time (school years), sex of student, and subtest. Residual gains for each student were computed within each year, within each subtest, within sex, and within Title I versus non-Title I schools (because different tests were used in these two different kinds of schools). These residual gain scores for individual students were then summed and averaged to produce a mean residual gain for each teacher's class. This was done for three consecutive years for a total of 165 teachers. From these, those who were most consistent across the five subtests, the two

sexes, and the three years of data were selected for study. This was done because it was felt that teachers most consistent in producing student learning gains would be most likely to behave most consistently in the classroom and thus yield the most clear and interpretable process-product relationships. For detailed reports of the rationale and statistics involved in sample selection, as well as for details of the data discussed in the present report, see the references listed at the end of the paper.

Thirty-one teachers were observed in the first year for about ten hours each, and 28 teachers were observed in the second year for about 30 hours each. Nineteen teachers were observed both years. The low inference system used was based on the Brophy-Good Dyadic Interaction Observation System (Brophy and Good, 1970), although it was considerably expanded to take into account numerous contextual variables and other interaction variables that we thought to be important, and also to accommodate some of the variables that Kounin (1970) had stressed in his research on classroom management. Data were also collected through high inference ratings of the teachers made by the observers at the end of the years, and through interviews and questionnaires designed to get information concerning teacher beliefs and attitudes and teacher practices that cannot be observed in the classroom, such as preparation and test construction.

An attempt was made to collect affective data concerning perceptions of the teacher and school from students, but this did not work out because the students did not give valid responses, apparently because of developmental immaturity. Thus, it should be kept in mind that the only criteria of teacher effectiveness in this study, except when process

variables in the affective sphere are mentioned, was teacher ability to produce student learning gains on standardized achievement tests. This should be kept in mind, because many investigators have found that teacher behavior that fosters learning gains is unrelated to or even negatively related to teacher behavior that fosters popularity with students, and vice versa.

Each presage or process variable from the teachers was analyzed for linear correlations and for non-linear relationships to student outcome criteria. These analyses produced a large volume of data, some of which supports the existing literature and some of which seems to contradict it, although we believe that most of the contradictions can be resolved by taking into account differences in the ages and general developmental levels of the students involved in various studies. In short, teaching young students the fundamental tool skills taught in the early elementary grades appears to be qualitatively different in many respects from teaching older students more cognitively complex material through more verbal means, and consequently the kinds of teaching that are optimal in these different situations differ. Some of this will be discussed in the present report and those to follow. However, the present report concentrates on certain findings that showed contrasting relationships between teacher variables and student outcome criteria when student social class was taken into account. These SES differences will be focused upon in the remainder of the present paper.

Teacher Beliefs and Attitudes

Although commonalities were more frequent than differences, teachers working in low SES schools differed in several systematic ways from teachers working in high SES schools.

Beliefs and attitudes toward minority groups (blacks and Mexican-Americans in this case) were generally unrelated to teaching effectiveness or to the race or ethnicity of the teacher. Most were related to the degree of experience that the teacher had had with the group in question. A few high SES teachers gave rather rosy pictures of black and/or Mexican-American children, but they pointed out that their responses were based upon working with a very small number of such children, and that the children that they had encountered were unusually high in the educational level and social class background of their families. De facto segregation in urban schools is such that the teachers in high SES Anglo schools either never had worked with a single minority group child at all or had worked with so few that they could remember them all clearly.

The responses of teachers who taught minority group children regularly were entirely different. These teachers found it meaningless and impossible to generalize about either blacks or Mexican-Americans, because they had long since discovered that such stereotypic generalizations do not hold up. They had ceased to think in group terms, looking instead upon the individual student and his unique characteristics. With the exception of a very small number of disgruntled teachers who had been assigned to low SES schools against their wills and had very negative attitudes toward the children, this stress on the uniqueness of the individual was common to almost all teachers working in low SES schools, regardless of their levels of effectiveness in producing student learning gains.

There were other SES differences in teacher beliefs and attitudes which also reflected differences in experiences which tended to make a difference in what a teacher looked upon as "normal." In general, teachers in high SES schools were more "professional" in their responses to questionnaires and interview items, giving answers more closely resembling what is stressed in teacher education textbooks than teachers in low SES schools gave. The high SES teachers were more likely to have a particular theoretical position regarding teaching, and more likely to stress matters of curriculum and instruction than matters related to student needs or individual differences. In contrast, low SES teachers tended to have an attitude of, "If one method doesn't work, keep trying until you find one that does." They stressed individual student needs and the importance of finding a way to reach the student, and they were not particularly concerned with theoretical issues.

Another SES difference was that the high SES teachers had a definite preference for high achieving children, perhaps because they could afford to do so. In any case, given their choice, they would prefer to work with high achievers. They left little room for flexibility regarding the curriculum (tending to believe that all of the children should master the same curriculum, at a minimum). They also believed that children who failed to master the curriculum should be flunked and retained in the grade rather than given a social promotion. Teachers working with low SES students, regardless of effectiveness, were less likely to hold such attitudes.

Classroom Management

Although the same basic general principles of classroom management were important in both low and high SES classrooms, there were some differences in what was optimal. The high SES children, on the average, were more capable of assuming independent responsibility, moving freely about the classroom, exercising some choice among assignments, and working independently or in cooperative small groups. Consequently, the more successful teachers working in high SES schools tended to allow the children these privileges and opportunities to the extent that they were able to handle them and benefit from them. In contrast, most low SES children were not yet ready for this kind of independent responsibility, and they usually needed more restrictions on movement about the classroom and more structure concerning assignments. Consequently, the more successful low SES school teachers were more restrictive and provided more structure.

In low SES classrooms, it was especially important for the teacher to be ready, willing, and able to deal with serious problems, since serious problems were much more likely here than in high SES schools. The successful teachers usually dealt with them, and dealt with them appropriately. In contrast, the less successful teachers either tried to avoid dealing with them altogether (such as by sending the child to the principal), or else responded with some kind of punitive overreaction that did not deal with the problem appropriately. Teachers in high SES schools simply did not have to deal with serious behavior problems often, if at all. The children were still young enough so that they

accepted adult authority without much testing or challenging. Consequently, in high SES classrooms it was more important for the teacher to provide a stimulating and interesting environment that would afford the children opportunities to do interesting and enjoyable things when they finished their assignments, while in low SES classrooms it was more important for the teachers to make sure that the children got assignments that they could handle and to make sure that the assignments were done.

Use of Tests

Teachers did not tend to overreact to I.Q. scores or to suggest hard and fast one-to-one relationships between intelligence and achievement scores. They saw I.Q. as a useful index that told something about the child and that needed to be taken into account in planning learning experiences for him, but they ordinarily did not view it as a fixed index that placed narrow limits upon what the child could or should do.

Although they agreed concerning the importance of I.Q. tests, effective teachers disagreed about the usefulness of standardized achievement tests, depending upon whether or not they taught in low or in high SES schools. Teachers in high SES schools had much more faith in and were much more positively disposed towards standardized achievement tests. This attitude probably was appropriate, considering that both the curricula and the tests connected with them were developed with middle class children in mind, and seemed to work reasonably well with these children. Consequently, successful high SES teachers stressed teaching the curriculum itself and also stressed testing as an important activity along with teaching.

Low SES successful teachers agreed that evaluation and monitoring

of student performance was important, but they distrusted standardized test scores. Many stated that standardized tests were essentially useless for their children, because they assumed reading abilities or test taking skills that the children simply did not have. Consequently, they substituted teacher-made tests based upon their own experiences to use in judging what abilities a child did and did not possess and how well he was progressing as the year went on. They also stressed informal evaluation conducted through observation and monitoring of seatwork. This was in addition to, and in some cases in preference to, scores obtained through formal tests, especially standardized tests.

Teachers in general felt that I.Q. was important but was not the only or even the best indicator of student potential, and that more specific information was needed in order to know what skills a child had mastered and what content was appropriate for him at a particular time. Low SES successful teachers were particularly sensitive to the dangers of overreacting to test scores that might be invalid because a child did not possess certain abilities that the test assumed. Also, successful teachers at all SES levels were sensitive to the dangers of committing logical errors such as believing that a child would succeed in one area because he had tested out well in a related area. These teachers were quite aware that children show very uneven patterns of achievement, especially in the early grades, and that a given score on a given test, even something labeled an I.Q. test, was not necessarily indicative of general ability. Also, the successful teachers were not more test oriented than the other teachers. If anything, the opposite was the case. They professed less concern about evaluation in general and about

standardized test scores in particular, and they were much more concerned about seeing that their students learned than they were about evaluations of themselves.

In the case of the low SES successful teachers, this sometimes even meant deliberately avoiding the use of standardized tests, on the ground that they were not appropriate or at least were not optimally appropriate for their students. Teachers who felt this way responded by substituting tests of their own. These same teachers also often substituted curriculum materials for the standardized curriculum if they felt that the standardized curriculum was not doing the job or was otherwise inappropriate for their students. Yet, these same teachers, who seemed to be going out of their way to substitute for the standardized curriculum and avoid using standardized tests when they didn't feel that they were appropriate, got the highest gains on standardized materials and voiced greater concern about how their children were doing on standardized tests.

All of this would seem to strongly confirm the attitudes expressed by the teachers in the interviews and on the questionnaires to the effect that tests should be used merely as vehicles for facilitating diagnosis and remediation, and that they have little importance in their own right beyond this.

Motivation

In high SES classrooms, where the students were generally high achieving and well motivated, sometimes to the point of being overly

competitive, the teachers' main task was to provide a variety of challenging stimulation in assignments for the children. Praise, particularly praise of students who approached the teacher seeking it, proved to be negatively related to student learning gains. In contrast, criticism of students for poor work was positively related to learning gains. Symbolic rewards such as stars and smiling faces were effective motivators, but teacher verbal praise and attempts to "reward" children by allowing them to perform monitor duties were not. Although scolding sometimes was effective, the most effective ways of dealing with misbehavior were to have individual conferences with the child or keep him after school to discuss the problem and state expectations for behavioral change, as opposed to more punitive and less informative methods which were negatively related to learning gains.

In contrast, the students in low SES schools were primarily apathetic, anxious, and alienated from learning. Neither rewards nor punishments were particularly important one way or the other in these schools. What was important was the teacher's ability to motivate the students to become actively engaged in the learning process to the point that they would answer questions in public response situations and work persistently on their seatwork. The most successful teachers did this through a combination of providing a warm, supportive atmosphere, praising students (but doing so mostly in teacher initiated individual contacts), and matching demands and materials to the needs and interests of the students.

Successful teachers in both kinds of schools communicated high expectations, but the successful teachers in high SES schools did so through a critical demandingness, while the successful teachers in low SES schools did so through patience and encouragement.

Teacher Affect

One of the most pervasive and basic aspects of the teacher's personality, which we expected to correlate with student learning gains, was her affectionateness toward the children. We thought that the warmer, more affectionate teachers generally would be more effective than other teachers, particularly in low SES schools. As it turned out, teacher affectionateness did not show this relationship. It was unrelated, either linearly or curvilinearly, to students' learning gains.

The same was true for teacher enthusiasm, a variable that most previous studies have found to be positively associated with learning gains (Rosenshine and Furst, 1973; Dunkin and Biddle, 1974). We suspect that these negative findings (i.e., lack of relationships) are related to the ages of the students, and perhaps also to the variance in the teacher sample. Most of the studies supporting the variables discussed in this section, and in fact most of the studies on process-product relationships generally, have been conducted at higher grade levels. We believe that this is the primary reason for most of the conflicts between our findings and several findings common in the literature.

Concerning teacher affect and enthusiasm, for example, we believe that an argument can be made that they are less important with younger children than with older children, despite the acknowledged importance

of adults relative to the peer group for younger children. For one thing, young children tend to accept without much questioning or opposition the idea that they are supposed to go to school and "learn," and that the teacher's job is to teach them. Respect and a certain type of affection is afforded to the teacher more or less automatically; teachers working with young children usually do not have to prove themselves the way that teachers working with older students do. Similarly, younger children tend to accept the school curriculum as given, so that enthusiasm and some of the other teacher characteristics that are important in generating interest in a subject area among older students are superfluous with younger ones. Thus, it can be argued that affect, enthusiasm, and related teacher characteristics are less important with young children, particularly those in high SES schools, than they are with older children and adolescents. Of variables related to these teacher qualities, only ratings of teachers' showmanship showed significant (positive) correlations with learning gains, and only for low SES children.

Also, it is clear that the sample did not contain teachers who were extremely negative on these variables. That is, contrary to the unfortunate recent tendency to picture teachers as incompetent bullies who take out their frustrations on their students, our data revealed that almost all of the teachers in our sample were warm and student oriented (in varying degrees). Taking into account these various factors, perhaps it is not so surprising that teacher affect and enthusiasm were unrelated to student learning gains.

Finally, it should be noted again that our data did not include separate coding of teacher interactions with individual students. This was particularly important for variables like affect and enthusiasm, because these usually are expressed in interactions with individuals rather than with the class as a whole. If data had been available on the teachers' affective stance toward each student separately, rather than in terms of general class means, systematic relationships might have been revealed.

Indirect Teaching

Negative or primarily negative findings also were obtained for several aspects of teaching which have been strongly advocated in the literature. One of these was the concept of "indirect teaching" as propounded by Flanders (1970). Flanders and his associates have conducted numerous studies supporting the contention that indirect teaching is positively (or, in some cases, curvilinearly) related to student learning gains. They also have produced much evidence that indirect teaching is strongly related to positive student attitudes. Indirect teaching usually is defined to include minimal teacher talk and maximal student talk, minimal lecture and maximal discussion, stress on independent student learning, frequent praise of students, frequent use of student ideas and inclusion of student ideas in discussions, and frequent student-to-student interaction.

For the most part, these indications of indirect teaching were either unrelated or negatively related to student learning gains, although in a few places they were beginning to show positive relationships in the high SES schools. We conclude from this that indirect teaching is inappropriate in the early elementary grades when children

are still in the process of mastering the fundamental tool skills of reading, writing, and arithmetic, although it may be appropriate and even optimal for students at higher levels who are spending much time discussing material that they have read and conducting independent learning projects. In any case, the data were loud and clear in stating that indirect teaching methods are not associated with success in producing student learning gains in the early elementary grades.

Lesson Structure

The same was true for the use of advance organizers, the importance of clarity and proper sequencing, the importance of directing attention through appropriate questions embedded in the lesson, and other aspects of verbal learning propounded as important by Ausubel (1963). As was the case with Flanders' indirect teaching, the reason that these teaching behaviors stressed by Ausubel, which generally have been well supported in other studies, did not correlate with learning gains in the present study, was the ages of the children. In the early elementary grades, the children are mastering fundamental tool skills, and this means that most of their time is spent practicing skills to the point of over-learning, usually skills that have a heavy motor component such as writing. This is in sharp contrast to the more purely conceptual learning that goes on at higher grade levels and is taught through primarily verbal means. Thus, Ausubel's variables, which are important for verbal exposition of meaningful conceptual material, are relatively unimportant for teachers working in the early elementary grades, for the simple reason that the teaching-learning conditions in these grades do not involve much verbal exposition of purely conceptual material.

Teacher Directiveness

Other variables which have been strongly advocated in the literature by some writers but which turned out to be utterly unrelated to student learning gains in the present study included the ratio of divergent to convergent questions and the variable of authoritarian vs. democratic classroom leadership style. The divergent/convergent questioning variable apparently was unimportant because of lack of variance in the kinds of questions asked at these grade levels, as well as the relative unimportance of questions in general at these grade levels compared to their importance in the higher grades. A smaller proportion of the teaching-learning situation in the early grades involves teacher questions and student responses, so that teacher questioning behavior is relatively less important here than it is later.

Also, the vast majority of the questions that are asked are simple factual questions that teachers in the early grades ask in the process of teaching fundamental tool skills. Very few higher order questions are asked because very little higher order material is taught (appropriately so, if we are to believe Piaget and others who suggest that the young child is not yet cognitively ready for highly abstract, purely verbal material). In short, the teacher's ability to question the children at varying cognitive levels is simply not relevant yet.

The authoritarian vs. democratic leadership style difference also is a matter of relevance. This variable has been studied many times by many different investigators. Although the data are far from clean and clear, they suggest that an authoritarian style maximizes cognitive gains

while a democratic style maximizes student attitudes. In the present study, this variable was simply unrelated to learning gains.

Conclusion

In closing, it should be noted that the most appropriate method of dealing with a particular child or class varies according to the developmental level of the child or class. In particular, it should be noted that what is optimal will change to the extent that the teacher has been successful. That is, a teacher who has brought along a class (or an individual student) wisely through careful structuring eventually will get them to the point where they are ready for some independent responsibility. It is important for teachers to remain aware of this developmental trend, because what is optimal for a child who is having difficulty with initial assignments concerning tool skill mastery and who needs careful structuring and considerable encouragement is very different from what is optimal for this same child when he reaches the stage where he is mastering tool skills and has acquired the independent behavior and learning habits that make it possible for him to profit from independent and self chosen activities.

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